

**General Biological Survey
and Focused Desert Tortoise Survey
on a \pm 314-acre parcel (APN 605-151-03)
in the Community of Joshua Tree,
San Bernardino County, California**

Job # 03-028

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September 2003

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in the Community of Joshua Tree,
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1.0. Introduction.

Circle Mountain Biological Consultants (CMBC) was contacted in late July of 2003 by Warner Engineering on behalf of JAT Associates, Inc. (Proponent). Warner requested that CMBC conduct a general biological survey and focused survey to determine the presence or absence of the federally- and State-listed desert tortoise (*Gopherus agassizii*) on a \pm 314-acre site (APN: 605-151-03) in San Bernardino County, California, in the community of Joshua Tree (T.1N, R.7E, the northern $\frac{1}{2}$ of Section 17). (See Figures 1 and 2.) The site is located immediately north of Sunflower Road, between Sunever and Rice Roads, and includes parts of Bunker Mountain. Elevations on the site range from 744 m to 808 m (2,440 to 2,650 feet), with Bunker Mountain rising to the northwest from an alluvial flat at its base. The site is proposed for development as a residential mixed-use recreational project (campground facility). Photos of the site are included in Appendix A.

2.0. Methods.

On 23 through 26 August 2003, Edward LaRue and Sharon Dougherty of CMBC, and Michael Radakovich, an independent subcontractor, conducted a focused survey for desert tortoise and a general biological survey of the \pm 314-acre site for a total of 60.75 person hours. Focused surveys for desert tortoise were carried out simultaneously with general surveys.

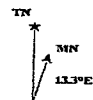
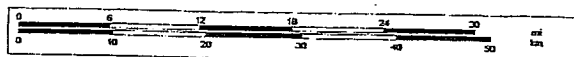
Tortoise surveys were conducted according to U.S. Fish and Wildlife Service (1992) protocols, with the following modifications. Surveys were conducted in late August, which is outside the recommended desert tortoise survey period of March 25 to May 31. CMBC has conducted numerous surveys outside the survey period, all of which have been accepted by the U.S. Fish and Wildlife Service (Service), since experienced biologists can detect desert tortoise by the presence of sign (i.e., burrows, scat, carcasses, etc.), even during periods when the animals are underground and inactive. (In this case, several tortoises were seen foraging above ground.) The alluvial flats on the southern portion of the site were surveyed at the recommended 30-foot interval, along 147 north-south transects. Mountainous areas of the site were surveyed at 100-foot intervals along 24 east-west transects, due to the difficulty of surveying extremely rocky and steep terrain. No zone-of-influence surveys were conducted since desert tortoises were detected on the site. All plants and animals observed or detected were recorded in field notes. Animals were detected by sight, calls, and sign such as scat (droppings), burrows, tracks, carcasses, etc. Plants were identified in the field or collected for future identification using standard field guides and manuals. No other focused surveys, such as small mammal trapping, bat surveys, etc. were conducted. For this reason, some hard to detect animal species may have been missed (e.g., bats, rodents), or identified only to genus (e.g., kangaroo rat).

Figure 1.
JAT Associates 314-acre Site
APN 605-151-03
Vicinity Map

Project Area

Map produced by Circle Mountain Biological Consultants
12 September 2003.

© 2001 DeLorme. Topo USA® 3.0
Room Level: 8-0 Datum: WGS84

$$1'' = 12.63 \text{ m}\hat{\text{r}}$$


Human disturbances, such as roads, dumping, off-highway vehicle use, etc., were noted. Habitat types were identified based on Sawyer and Keeler-Wolf's (1995) classification system. Weather conditions were favorable for surveys, with temperatures ranging from the low 70's to low 100's °F, 35-100% cloud cover skies, and light to moderate winds. At times during the surveys, light showers fell; surveys were interrupted when thunderstorms with heavy rain hit the area.

3.0. Results.

3.1. Common Biological Resources. The plant community present on the site is best characterized as a creosote bush series (Sawyer and Keeler-Wolf 1995), with creosote bush (*Larrea tridentata*) the dominant plant. Other perennials present include cheesebush (*Hymenoclea salsola*), senna (*Senna armata*), paper-bag bush (*Salazaria mexicana*), indigo bush (*Psoralea schottii*), silver cholla (*Opuntia echinocarpa*), pencil cholla (*O. ramosissima*), rayless encelia (*Encelia frutescens*), and bush sunflower (*E. virginensis*). Due to recent rains several fall annuals were very abundant, particularly chinch weed (*Pectis papposa*) and six-weeks grama (*Bouteloua barbata*). Other annual plant species detectable at the time surveys were carried out include desert dandelion (*Malacothrix glabrata*), chia (*Salvia columbariae*), plicate coldenia (*Tiquilia plicata*), odora (*Porophyllum gracile*), desert filaree (*Erodium texanum*), and purple phacelia (*Phacelia crenulata*), among others. Some non-native grasses and other weedy species were also present, including split grass (*Schismus* sp.), fiddleneck (*Amsinckia tessellata*), tansy (*Descurainia pinnata*) and wild turnip (*Brassica tournefortii*). A few Joshua trees (*Yucca brevifolia*), all dead, were seen along the base of the Bunker Mountain, at slightly higher elevations than elsewhere on the alluvial flats. Vegetation in the wash areas differed only slightly from that in surrounding areas, in that a few wash-associated species were present in limited numbers. These included catclaw acacia (*Acacia greggii*), cheesebush (*Hymenoclea salsola*), thick-leaf ground-cherry (*Physalis crassifolia*), and a handful of smoke trees (*Psoralea spinosa*). (The smoke trees were found in the northwestern portion of the property, in the vicinity of Golden Avenue.) Vegetation on higher elevations, on the rocky slopes and hilltops of Bunker Mountain was somewhat different from that found on the flats. Several species associated with rock outcrops or foothill areas were first detected in these areas, and include California buckwheat (*Eriogonum inflatum*), Pima rattany (*Krameria erecta*), brittlebush (*Encelia farinosa*), and fagonia (*Fagonia laevis*).

Wildlife species detected on the site during surveys include seven reptile, sixteen bird, and eight mammal species. Common Mojave Desert species detected include mourning dove, verdin, black-tailed sparrow, phainopepla, lesser nighthawk, common raven, house finch, western whiptail, desert iguana, zebra-tailed lizard, desert horned lizard, side-blotch lizard, black-tailed hare, Audubon's cottontail, coyote, kit fox, Antelope ground squirrel, bobcat, and kangaroo rats (detected by burrows and tracks). (See Appendix C.)

3.2. Special-status Species.

3.2.1. *Desert Tortoise*. Desert tortoises and their sign were detected on the site. Seven individuals were seen either in burrows or above ground, foraging. Table 1, below, lists all sign detected. Figure 2 shows the locations of all detected animals and sign. Most of the tortoise carcasses detected were found on the rocky hillsides overlooking the flats. It is likely that ravens or other predators or scavengers moved many of these carcasses to the rock outcrops from the nearby flats. The highest concentrations of other sign were found in the northeastern parts of the site, with additional concentrations along the main wash that runs northeast through the central portion of the site. Sign is much more difficult to detect in rocky areas than on flat terrain, and surveys in this area were carried out at wider intervals than on the flats. For this reason, tortoise sign was probably underrepresented in the survey results from the rocky and mountainous portions of the site. At least seven adult tortoises, two or more subadult animals, and an unknown number of juvenile tortoises are expected to be resident on the site, based on the amount and location of the sign present.

Table 1. Summary of Tortoise Sign Detected

TORTOISE SIGN	AMOUNT
Adult Desert Tortoise	7
Subadult Desert Tortoise	0
TOTAL NUMBER TORTOISES	7
Adult Tortoise Carcass	9
Subadult Tortoise Carcass	2
Juvenile Tortoise Carcass	3
TOTAL NUMBER CARCASSES	14
Adult Tortoise Burrow	32
Subadult Tortoise Burrow	5
TOTAL NUMBER BURROWS	37
Adult Tortoise Scat, deposited this year	164
Subadult Tortoise Scat, deposited this year	56
Adult Tortoise Scat, deposited before this year	25
Subadult Tortoise Scat, deposited before this year	11
TOTAL NUMBER SCAT	256
Adult Tortoise Tracks	1
Subadult Tortoise Tracks	1
TOTAL SETS TRACKS	2

3.2.2. *Other Special-status Species*. Other special-status species detected within the site's boundaries include loggerhead shrike (a federal Species of Concern and a California Species of Special Concern), Le Conte's thrasher (a California Species of Special Concern), and common chuckwalla (a federal Species of Concern). Single loggerhead shrikes were observed on four occasions during CMBC's 2003 survey of the site, and probably at least three individuals are resident on the site. A pair and two single Le Conte's thrashers were observed in wash areas of the site during CMBC's surveys. At least four of these birds are probably resident on the site and would be expected to breed in the vicinity. (See Figure 2 for locations of these sightings.) Scat from common chuckwalla was found throughout the rocky areas of Bunker Mountain during CMBC's surveys.

3.3. Human Disturbance. Evidence of human disturbance was very heavy in some locations, but light in other parts of the site. Table 2, below, summarizes the amount of disturbance noted on the flats. Vegetation on some portions of the site was very sparse, where target shooting has been very prevalent. Large numbers of derelict cars, appliances and other trash have been dumped in these areas and used as targets. (See Exhibits 5 and 6.) Little disturbance was observed higher on the rocky mountain sides and hill tops, although targets have been propped in the rocks at the base of the mountain in many places, and broken glass, spent bullets, and other shooting debris are abundant at these locations. Human disturbance on the remainder of the flatter portions of the site is much lighter, and large areas of relatively intact vegetation remain. Few non-native plants are present in the less disturbed areas.

Table 2. Human Disturbance Tallied on Flats

Disturbance	OHV	Shotgun	Road	Skeet/Target	Dump*	Rifle	Dog	Trail
Total Incidents Observed	1179	114	102	79	54	30	19	3
# per 100 feet of transect	0.408	0.039	0.035	0.027	0.018'	0.010	0.006	0.001

* Includes some very large dumpsites, with abandoned cars, appliances, etc.

During CMBC's surveys of the site, a group of three dogs was twice observed on the property, once in pursuit of a black-tailed hare on the afternoon of 25 August, and again apparently hunting on the morning of 27 August 2003. Several of the desert tortoises observed during surveys had damage to the gular area of their carapace, which is characteristic of animals that have been mauled by dogs. Free-ranging or feral dogs appear to be a significant source of disturbance to desert tortoises in the vicinity.

3.4. Adjacent Land Uses. One single-family residence is present immediately east of the southeast corner of the property, and several are present at the eastern end of Golden Avenue, west of the northwest corner of the site. A large water tank and access road are present on the hilltop adjacent to the northeast portion of the site. All other adjacent areas are undeveloped, and adjacent roads are unpaved.

4.0. Discussion.

4.1. Desert Tortoise. The project site is located within Category III habitat for desert tortoise, as designated by the U.S. Bureau of Land Management. Desert tortoise sign was found at several locations on the property, and indicates at least seven adult tortoises, two or more subadult animals, and an unknown number of juvenile tortoises are present in the vicinity. (See Figure 2.)

Given that no federal nexus exists for permitting under section 7 of the Federal Endangered Species Act as amended, the Proponent may need to obtain incidental take permits from the U.S. Fish and Wildlife Service (section 10(a)(1)(B)) and California Department of Fish and Game (2081) prior to performing any ground disturbing activities on-site. Compensation for loss of habitat may be required, and specific measures recommended to avoid take of desert tortoise during construction.

The Proponent has indicated that the proposed development will consist of a campground, access roads, and associated trails. The campground has been tentatively planned to be located in the central "cove area" of the site, where dumping and shooting has had the heaviest impacts. The extensive dump areas on the site will be cleaned up, and future illegal dumping and shooting will be curtailed. Such changes are likely to improve habitat on the site for desert tortoise. CMBC recommends that construction be limited to the smallest area possible, and that trails and access roads be clearly marked, to allow recovery of the native vegetation in currently disturbed areas. CMBC recommends that free-ranging and feral dogs should be reported to County Animal Control and removed whenever observed in the vicinity, to reduce impacts to desert tortoise and other wildlife. Such animals may also be aggressive towards humans and could pose a danger to campers. CMBC also recommends that native and drought resistant plants should be used in landscaping, and exotic, invasive plants be avoided. See Appendix D for a list of the latter.

4.2. Other Special-status Species. Three other special-status species were observed on the site: loggerhead shrike (a federal Species of Concern and a California Species of Special Concern), Le Conte's thrasher (a California Species of Special Concern), and common chuckwalla (a federal Species of Concern). Le Conte's thrashers and loggerhead shrikes may be affected by the development of the property, through loss of habitat, and potential direct loss of eggs and young if a nesting pair is affected by construction activities. If possible, ground-clearing activities should be scheduled between mid-June and early January, to avoid loss of eggs and young of these and other bird species. Impacts to nests and young of migratory birds are considered a violation of the Migratory Bird Treaty Act by the Department. No impacts are expected to common chuckwalla, since this species is restricted to rock outcrops, and development of the more mountainous rocky areas is not anticipated.

4.3. Wetland/Stream Issues. Any action physically affecting the blueline washes would likely require a permit for streambed alteration (California Department of Fish and Game 1601 permit). CMBC has been recently advised by the U.S. Army Corps of Engineers that washes in the Yucca Valley/Joshua Tree area are not considered "Waters of the United States," and do not fall under Corps' jurisdiction (Jerry Salas, US Army Corps of Engineers, pers. comm., June 2003).

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Figure 2.
T Associates 314-acre Site
APN 605-151-03
Site Map

- Desert Tortoise
- Tortoise Carcass
- Adult Tortoise Scat, deposited this year
- Adult Tortoise Scat, deposited before this year
- Subadult Tortoise Scat, deposited this year
- Subadult Tortoise Scat, deposited before this year
- Loggerhead Shrike
- LeConte's Thrasher

SUNWAY RD

SUN LOMA RD

SUNFLOWER RD

SUNFLOWER RD

SUNFLOWER RD

Mountain Biological Consultants
12 September 2003.

500 ft

0°E

5.0. Literature Cited.

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APPENDIX A.
Photographic Exhibits

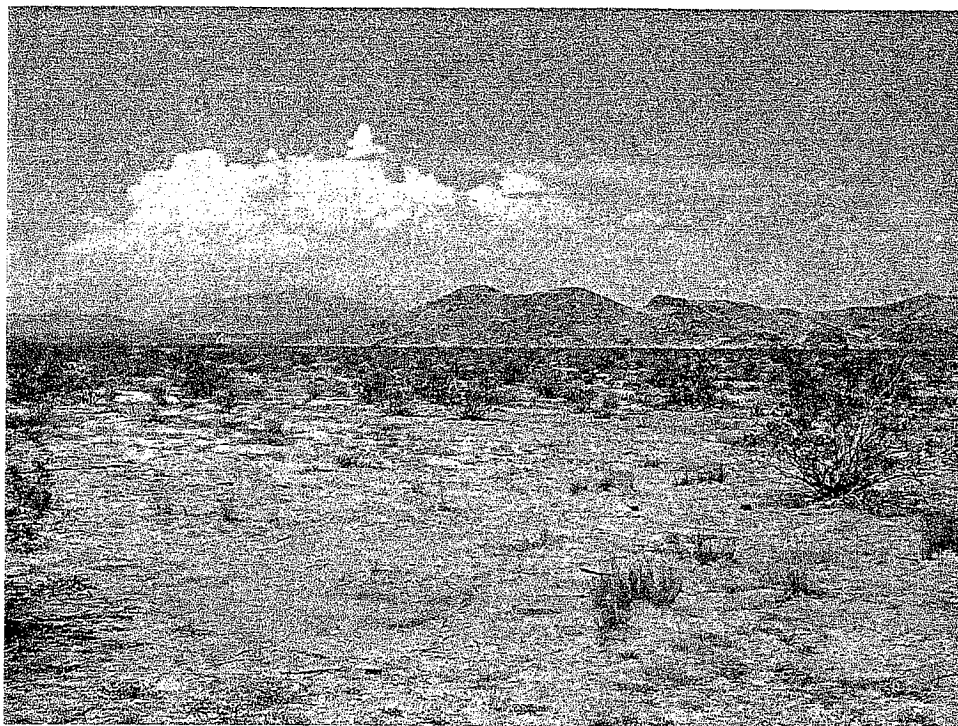


Exhibit 1. JAT Property, SE corner, facing NW

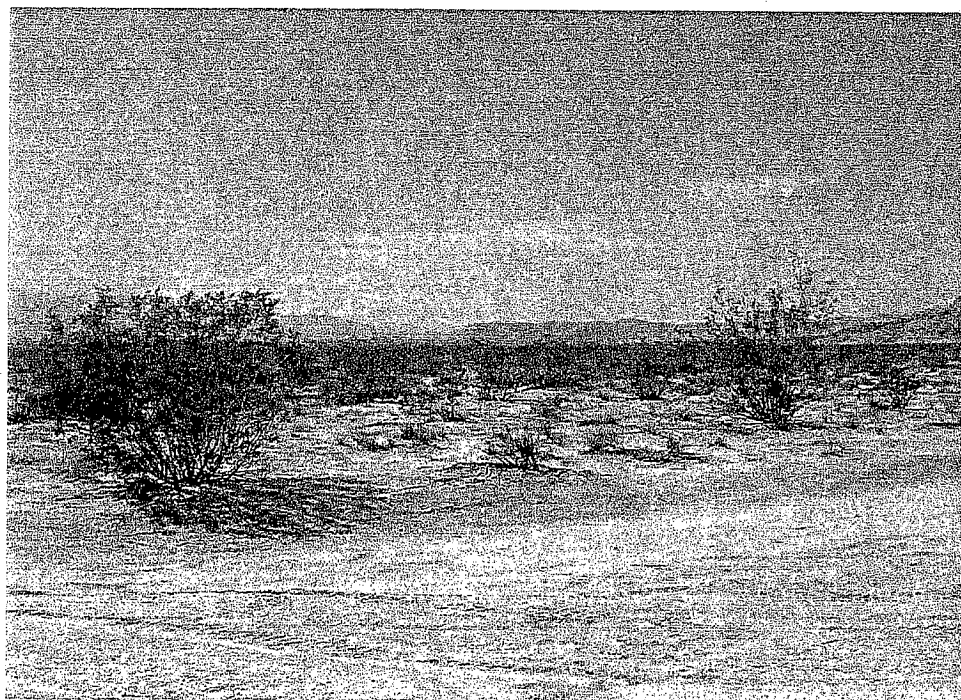


Exhibit 2. JAT Property, NE corner of property, facing SW

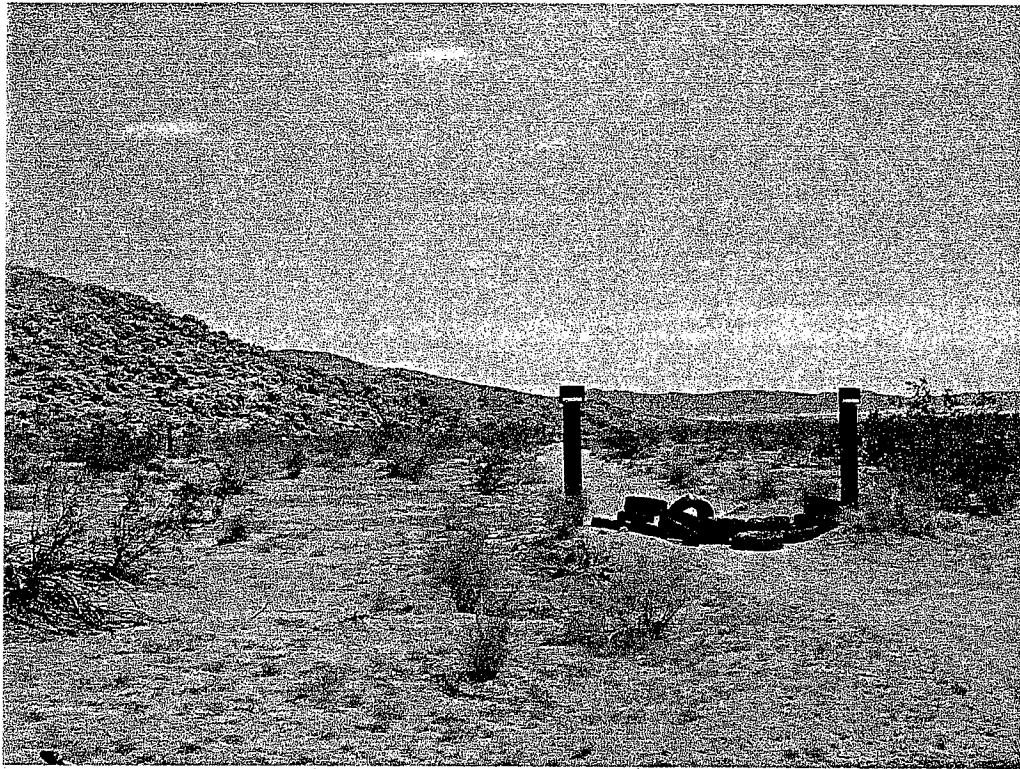


Exhibit 3. JAT Property, SW corner, facing NE

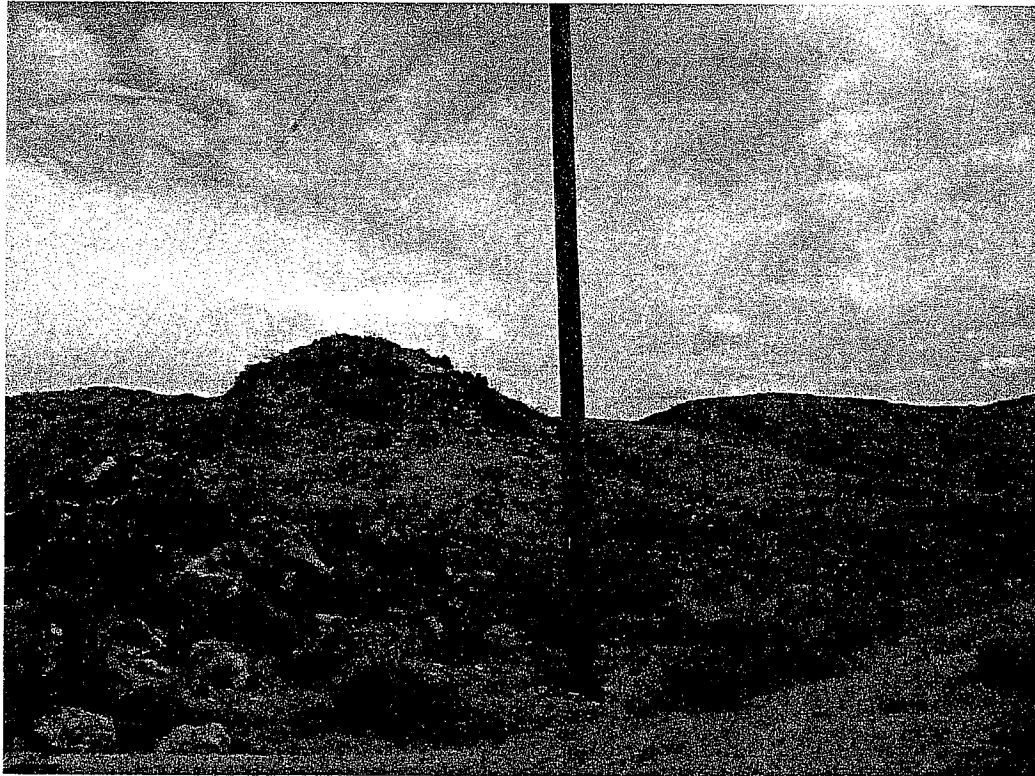


Exhibit 4. JAT Property, NW corner, facing SE

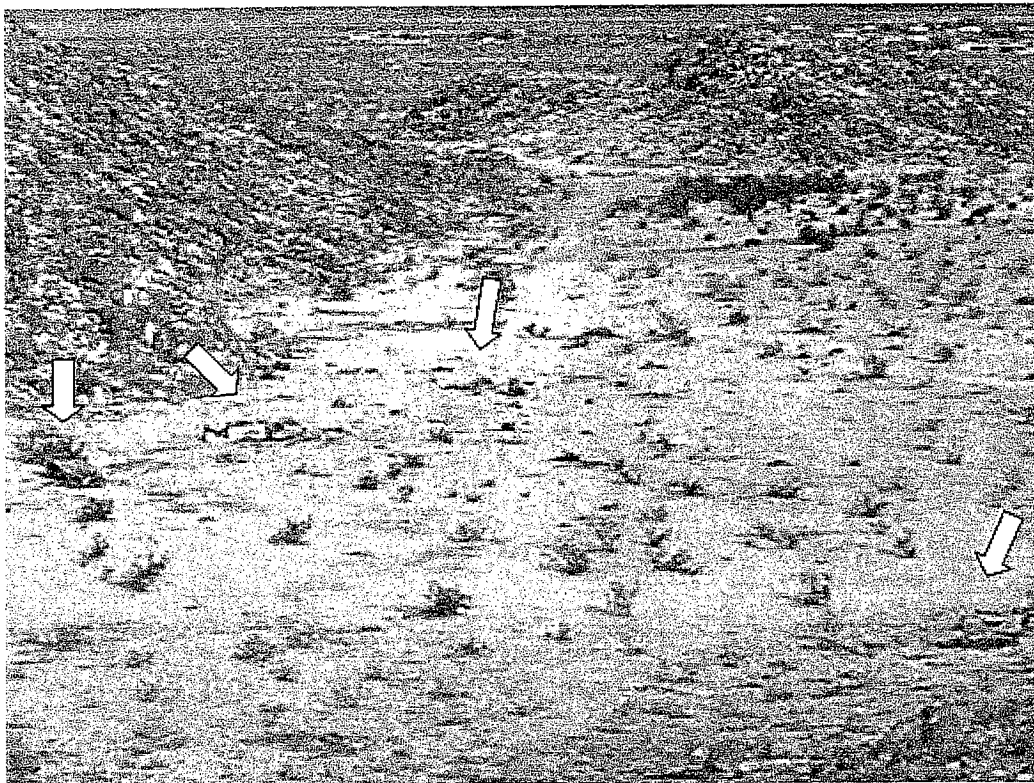


Exhibit 5. JAT Property, overview of dumping in central cove area

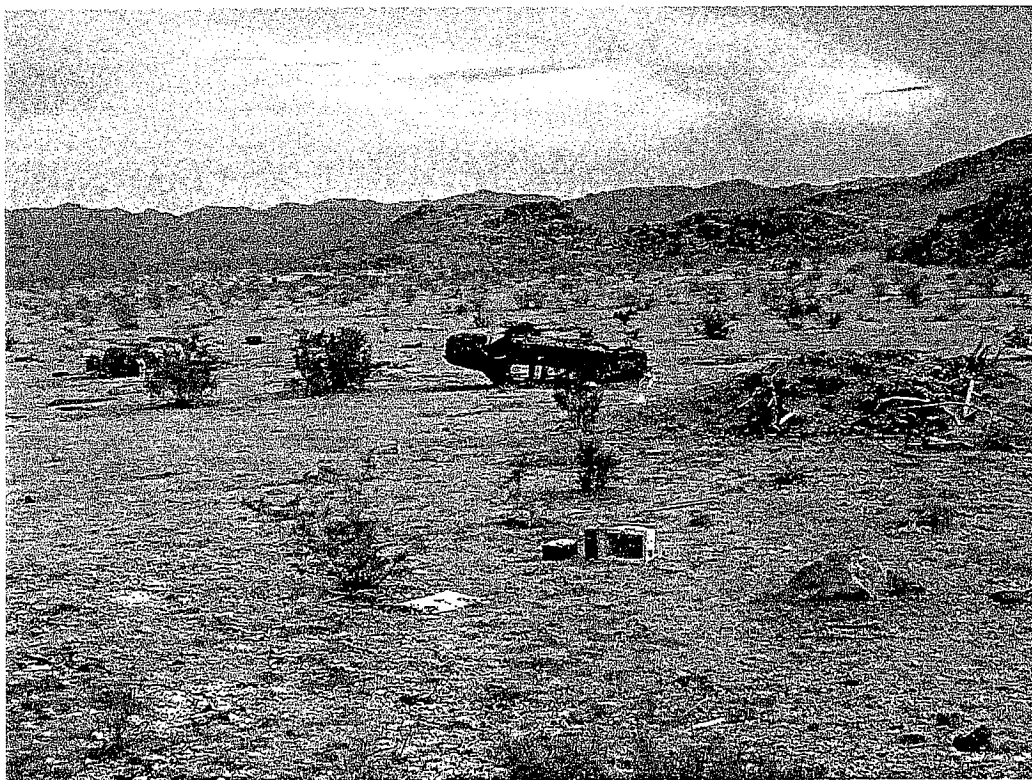


Exhibit 6. JAT Property, dumping and shooting debris

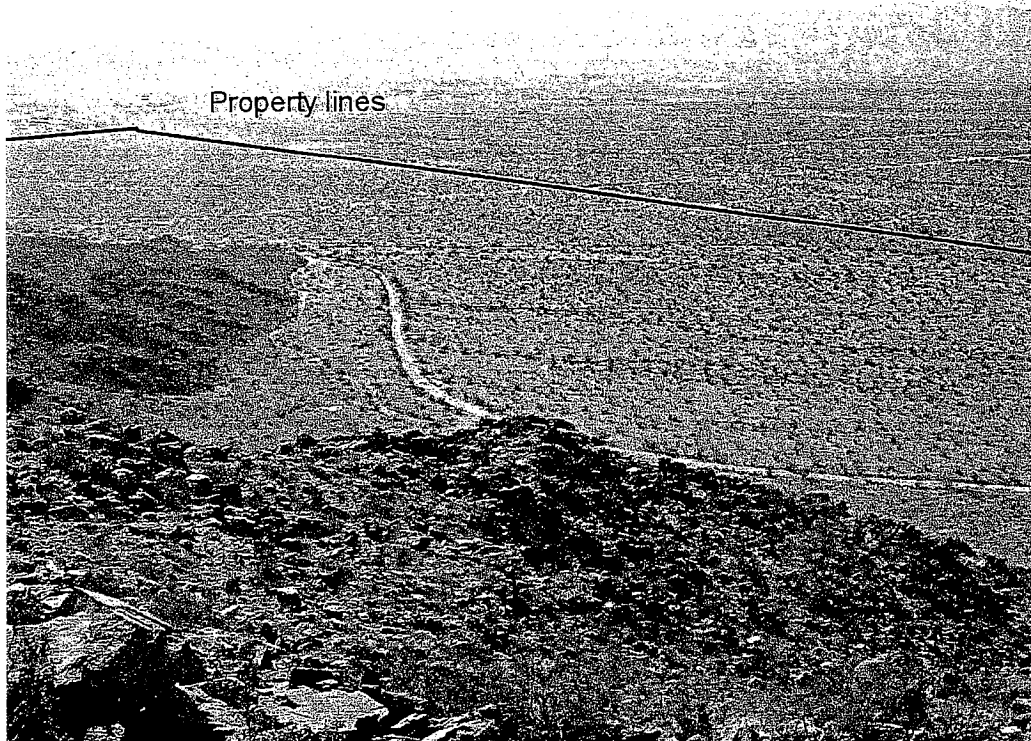


Exhibit 7. View from Bunker Mountain , overlooking JAT Property from NW

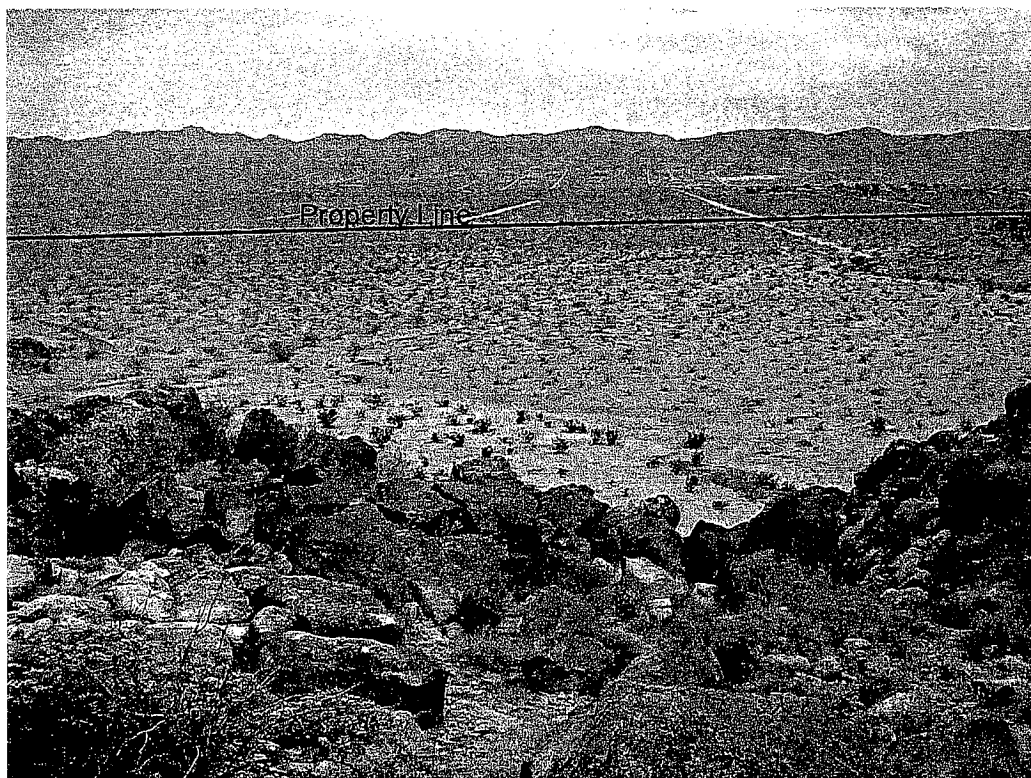


Exhibit 8. View of JAT property from north, overlooking cove and flats

**JAT Associates
314-acre Site in Joshua Tree
(APN 605-151-03):
Plant Species List**

GNETAE

Ephedraceae

Ephedra sp.

ANGIOSPERMAE: DICOTYLEDONES

Asclepiadaceae

Sarcostemma cynanchoides (c.f.)

Asteraceae

Ambrosia acanthicarpa

Ambrosia dumosa

Bebbia juncea

Brickellia incana

Dyssodia cooperi

Encelia farinosa

Encelia frutescens

Encelia virginensis

Hymenoclea salsola

Malacothrix glabrata

Palafoxia arida (*P. linearis*)

Pectis papposa

Porophyllum gracile

Xylorizia (*Machaeranthera*) *tortifolia*

Boraginaceae

Amsinckia tessellata

Cryptantha angustifolia

Tiquilia plicata

Brassicaceae

**Brassica tourneforti*

**Descurainia pinnata*

Lepidium nitidum

GNETAE

Joint-fir family

Desert tea

DICOT FLOWERING PLANTS

Milkweed family

Climbing milkweed

Sunflower family

Annual bur-sage

Burrobush

Sweetbush

Brickellbush

Cooper's dyssodia

Brittlebush

Rayless encelia

Bush sunflower

Cheesebush

Desert dandelion

Desert Spanish needles

Chinch weed

Odora

Desert aster

Borage family

Fiddleneck

Narrow-leaved forget-me-not

Plicate coldenia

Mustard family

Wild turnip

Tansy

Peppergrass

Cactaceae

Echinocactus polycephalus
Echinocereus engelmannii
Opuntia basilaris
Opuntia echinocarpa
Opuntia ramosissima

Cucurbitaceae

Cucurbita palmata

Euphorbiaceae

Chamaesyce (Euphorbia) albomarginata
Croton californicus
Stillingia paucidentata

Fabaceae

Acacia greggii
Dalea mollis
Psoralea schottii
Psoralea spinosus
Senna (Cassia) armata

Geraneaceae

Erodium texanum

Hydrophyllaceae

Phacelia crenulata

Krameriaceae

Krameria erecta

Lamiaceae

Salazaria mexicana
Salvia columbariae

Lennoaceae

Petalonyx thurberi

Malvaceae

Sphaeralcea ambigua

Nyctaginaceae

Mirabilis bigelovii

Cactus family

Cottontop cactus
Hedgehog cactus
Beavertail cactus
Silver cholla
Pencil cholla

Gourd family

Coyote gourd

Spurge family

Rattlesnake weed
Croton
Stillingia

Pea family

Catclaw
Dalea
Indigo bush
Smoke tree
Senna

Geranium family

Desert filaree

Water-leaf family

Purple phacelia

Krameria family

Pima rhatany

Mint family

Paper-bag bush
Chia

Sand food family

Sandpaper plant

Mallow family

Desert mallow

Four o'clock family

Desert wishbone plant

Onagraceae*Camissonia boothii**Camissonia claviformis***Plantaginaceae***Plantago ovata***Polygonaceae***Eriogonum deflexum**Eriogonum fasciculatum**Eriogonum inflatum***Solanaceae***Datura wrightii (meteloides)**Lycium cooperi**Physalis crassifolia***Zygophyllaceae***Fagonia laevis**Larrea tridentata***Evening-primrose family**

Red primrose

Brown-eyed primrose

Plantain family

Plantain

Buckwheat family

Desert skeleton weed

California buckwheat

Desert trumpet

Nightshade family

Jimsonweed

Peach thorn

Thick-leaf ground-cherry

Caltrop family

Fagonia

Creosote bush

ANGIOSPERMAE: MONOCOTYLEDONES**Liliaceae***Yucca brevifolia***Poaceae***Achnatherum (Oryzopsis) hymenoides**Bouteloua c.f. barbata**Pleuraphis (Hilaria) rigida***Schismus* sp.**Triticum aestivum***MONOCOT FLOWERING PLANTS****Lily family**

Joshua tree

Grass family

Indian ricegrass

Six-weeks grama

Big galleta

Split-grass

Wheat

* - indicates a non-native (introduced) species.

c.f. - compares favorably to a given species when the actual species is unknown.

Some species may not have been detected because of the seasonal nature of their occurrence.

Common names are taken from Beauchamp (1986), Hickman (1993), Jaeger (1969), and Munz (1974).

APPENDIX C.
JAT Associates
314-acre Site in Joshua Tree
(APN 605-151-03): Animals Detected

REPTILIA

Testudinidae

Gopherus agassizii

Iguanidae

Dipsosaurus dorsalis

Sauromalus ater

Callisaurus draconoides

Uta stansburiana

Phrynosoma platyrhinos

Teiidae

Cnemidophorus tigris

AVES

Cathartidae

Cathartes aura

Falconidae

Falco sparverius

Columbidae

Zenaida macroura

Cuculidae

Geococcyx californianus

Camprimulgidae

Chordeiles acutipennis

Tyrannidae

Myiarchus cinerascens

Tyrannus verticalis

Laniidae

Lanius ludovicianus

Corvidae

Corvus corax

REPTILES

Land tortoises

Desert tortoise

Iguanids

Desert iguana

Common chuckwalla

Zebra-tailed lizard

Side-blotched lizard

Desert horned lizard

Whiptails

Western whiptail

BIRDS

Vultures

Turkey vulture

Falcons

American kestrel

Pigeons and doves

Mourning dove

Cuckoos

Greater roadrunner

Nightjars

Lesser nighthawk

Tyrant flycatchers

Ash-throated flycatcher

Western kingbird

Shrikes

Loggerhead shrike

Crows and jays

Common raven

Remizidae*Auriparus flavipes***Troglodytidae***Salpinctes obsoletus***Mimidae***Toxostoma lecontei***Ptilogonatidae***Phainopepla nitens***Emberizidae***Amphispiza bilineata**Dendroica coronata***Fringillidae***Carpodacus mexicanus***MAMMALIA****Leporidae***Lepus californicus**Sylvilagus audubonii***Sciuridae***Ammospermophilus leucurus***Heteromyidae***Dipodomys sp.***Cricetidae***Neotoma lepida***Canidae***Canis latrans**Vulpes macrotis***Felidae***Lynx rufus***Verdins**

Verdin

Wrens

Rock wren

Mockingbirds and thrashers

Le Conte's thrasher

Silky flycatchers

Phainopepla

Emberizine Sparrows and their allies

Black-throated sparrow

Yellow-rumped warbler

Finches

House finch

MAMMALS**Hares and rabbits**

Black-tailed hare

Audubon cottontail

Squirrels and flying squirrels

Antelope ground squirrel

Pocket mice

Kangaroo rat

Rats and mice

Desert wood rat

Foxes, wolves and coyotes

Coyote

Kit fox

Cats

Bobcat

Nomenclature follows Stebbins, *A Field Guide to Western Reptiles and Amphibians* (1985), second edition; Sibley, National Audubon Society, the Sibley Guide to Birds (2000), first edition; and Ingles, *Mammals of the Pacific States* (1965), second edition.